

GEN. O'RYAN TO TEST RAPID MOBILIZATION OF N. Y. GUARD

10,000 State Troops Ordered to Concentrate at Van Cortlandt Park Next Saturday--Auto Trucks and Buses to Be Used--All Branches of Service to Take Part

What could the militia of New York do in case of need? Could the National Guard of this State show the required degree of readiness? Gen. John F. O'Ryan intends to answer these questions in part, at least, by a mobilization of 10,000 State troops at Van Cortlandt Park next Saturday.

have been asked to lend their cars, their auto trucks and delivery wagons for the purpose of carrying as quickly as possible a large number of the men from the armory to Van Cortlandt Park next Saturday morning. This, in a way, will give us some idea of what we could do here in time of need, and it will probably stimulate

of the park will be marked off into six rectangular spaces each 100 by 150 yards, with benches arranged facing eastward on the sloping bank immediately contiguous to the highway. The idea is to give distinctive exhibitions simultaneously in these sections—a sort of a six ring circus, and the various half hour acts will

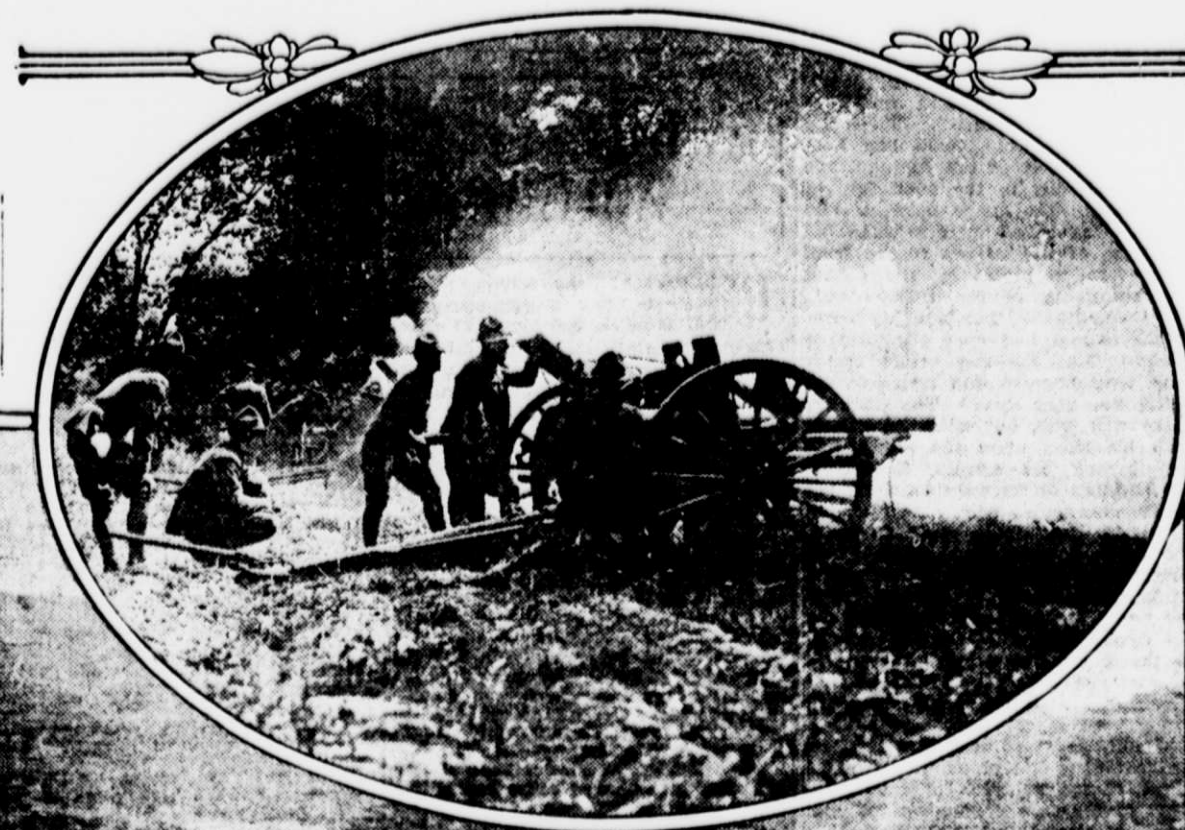


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National Guard artillery in action. Limber returning to pick up gun.

Above—Field battery in battle exercise.

Van Cortlandt Park offers an excellent terrain for such an exhibition. The troops will comprise every arm of the service, infantry, cavalry, field artillery and engineers, but the sea-coast artillery will serve for the nonce as infantry. The orders for mobilizing require that the various arms shall be at Van Cortlandt Park by 9 A. M. The cavalry and the field artillery will start the night before and make their way to the rendezvous under cover of darkness. The regiments of infantry will travel by the subway. There will be one exception, however, and the purpose of this is to emphasize one of the lessons of the world war.

As Lieut.-Col. Edward Oimstead of Gen. O'Ryan's staff has said: "All of us recall the stories that reached us about a year ago describing the manner in which London and Paris motor buses suddenly disappeared from the streets of the English and the French capital and the way in which these vehicles were pressed into military service for the speedy transportation of soldiers over the French and Belgian roads. The exigencies of actual conflict called for unworldly flexibility, and by commandeering all sorts of motor wagons it was possible to rush the defenders to the shifting battle front.



A field telephone operator.

the organization of a volunteer motor vehicle reserve." The programme for the day, so far as the public is concerned, starts at 10 o'clock, and the immediate point of interest will be just north of 242d street and along the east side of Broadway. There the open ground

be repeated in the different blocks, so that the spectators will all have the same show. In turn, there will be twenty-four of these acts run off before noon.

In one section temporary walls will be reared and the man of peace will be able to see just how the soldier is

prepared to scale obstacles of this sort and the speed with which this can be done by well trained men. The bayonet has figured conspicuously on battlefields of Europe of late, and one of the acts will include bayonet drill which covers the methods of attack and defence. The flashing heliograph, the wireless and field telephone will be demonstrated. The infantry, the artillery and the cavalry will each have its turn, and the men will be put through the regulation calisthenics besides, so that the man in the street may learn how the physique of the soldier is developed. Possibly nothing will appeal more to the popular mind, however, than the work cut out for the pioneers and the particular task of the demolition squad. For this act the engineers will build a trestle or military bridge, and make it strong enough to bear the load of marching troops and field guns. Then, with this force safely across, as it were, the demolition squad will play its part in effectually destroying the bridge for the purpose of hampering the pursuing enemy. These are only some of the things that the militia will do Saturday forenoon. There will be plenty of half racing performances. Promptly at 12 o'clock the forenoon exhibitions will be brought to a close and the men will go to dinner. As

far as possible it is intended to feed the soldiers either from camp kitchens or with the facilities that march, and employed while on the march, and here is where the commissary train will come into play and show its readiness for the real work cut out for it. About 1 o'clock the "assembly" will be sounded and the men will make ready for the chief performance of the afternoon's display. A small portion of the troops will be detailed to constitute an imaginary foe and the purpose of these will be to hold the ground and the approaches to the east and north of the grandstand. The greater part of the 10,000 troops will march up Broadway and turn into Van Cortlandt Park to the northward beyond the intervening ridge at some point where the several arms of the service can be formed agreeably to the methods of a force advancing into an enemy's country.

First the cavalry screen of the Blues will push its way southward through the woods and onto the crests of the hills to the north, seeking touch with the enemy. Working with the cavalry, but just to the rear will follow the signal corps with its field wireless. The machine gun detachment will accompany the advance guard and will draw the fire of the foe and endeavor to dis-

would be at a decided disadvantage against another so equipped. This is not the end of the motor vehicle arm. Next Saturday the defending force will be still stronger because of a number of armored cars carrying machine guns, and here, again, the public is to have made clear to it another of the lessons taught by the world war. The armored car in Europe has introduced a new tactical unit, because its mobility, speed, and measurable immunity against the fire of small arms have made it a terror to infantry and cavalry patrols.

So long as the way is open and the road at all possible the armored car with its one or more machine guns is a serious force to be reckoned with. Where horses would slip and slide or light field pieces find it difficult if not impossible to travel, the armored car with its wicked weapons has rushed forward time and again at a critical period.

The mobilization is to call into service the very newest of scouting arms—the aeroplane. The advance of the attacking Blues is to be aided by at least one flying machine carrying a military observer, and the most intimate knowledge of the enemy's force

and the distribution of his troops will thus be obtained from aloft. At the same time the scouting flying machine must stay high enough in the air to escape destruction, or, if flying low enough to be reached, it will be counted out if the Reds can maintain a certain volume of fire upon it for a prescribed number of minutes. This is a matter for the impetus to settle.

One of the morning features will probably be the throwing of a pontoon bridge across the lake east of Van Cortlandt mansion. The objection at first raised to this was that the banks would be badly broken and damage caused which would take some time to repair. This difficulty will be overcome by employing for the time being plank approaches which will protect the ground and yet make it possible for the bridge to be built and the mobilized forces to march over by way of demonstration.

This bridge will remain for the afternoon exercises and for the sake of realism will constitute a line of retreat for the fleeing Reds. At the same time the departing enemy will see to it that the bridge is at least so far dismantled that theoretically it will prevent the further advance of the outnumbering Blues.

the department has been using a standard low pressure fire hydrant with a capacity of approximately 2,000 gallons per minute, or three times the capacity of the hydrant of thirty years ago. The obsolete types of hydrant are being rapidly replaced. The capacity of the high pressure fire service hydrant is about 4,000 gallons per minute. It is easily recognized by the larger size and four openings instead of two, the latter being generally the number on the other type of hydrant.

A single high pressure hydrant will readily furnish as many fire streams as are furnished by five ordinary fire engines. With a sixty foot water tower in the street the stream would reach the fourteenth story of a building. So great is the pressure furnished by the high pressure system that a good stream can be delivered from the standpipe at the top of a forty story building.

The best practice for sanitary and other reasons calls for the use of a reasonable amount of water for street flushing, though it may impress the average citizen as a wasteful one. The amount actually required is, however, infinitesimally small as compared with that used for general domestic and fire purposes. A properly controlled stream of water may also be used with care in the removal of snow from the streets and sending it through the sewers.

There devolves upon the department the care of a vast amount of real estate, located not alone in the counties comprising Greater New York, but also in those of Westchester and Putnam, where are situated the Croton, Bronx and Hylan watersheds, and in Nassau county, where is found the principal source of supply for the borough of Brooklyn. The total value of that portion of this real estate which is owned by the city is approximately \$86,000,000, exclusive of structures. The value of the latter, comprising principally dams, aqueducts, gate houses, head house and shafts, but exclusive of water mains and their appurtenances, is \$2,000,000.

The total area of the city owned property under this department's control is about 25,000 acres, of which 23,763 acres, or more than one and a half times the total area of Manhattan, are located outside of the limits of New York city. Of the extensive territory about one-half consists of reservoirs, lakes and ponds. At the close of 1914 there were 345,275 consumers' accounts on the Water Register's books, an increase of 3,314 over the previous year. Of these, 246,467 were frontage accounts and 98,808 meter accounts. During 1913 and 1914 revenue derived from frontage and meter accounts respectively was as follows:

	1913.	1914.
Frontage ac.	\$6,125,742.82	\$6,297,887.16
meter accounts.	6,274,950.75	6,011,155.18

The department is of the opinion that all water should be metered, but before it can install meters in apartment houses, tenements, flat houses or private dwellings the consent of the Board of Aldermen or the Legislature must be obtained. To this end studies are being made and the department expects to submit appropriate recommendations during the coming year.

On January 1, 1914, there were 2,643 miles of streets and ten square miles of parks to be lighted in Greater New York. By the end of the year the miles of streets to be lighted had increased by 23. There were at the beginning of 1914 in all of the boroughs 40,653 electric lamps and 45,161 gas lamps. The former were of several different kinds. The most powerful was the flaming arc lamp, giving

out a reddish light, but of these there were only about 295 in all the boroughs. The next most powerful lamp was the familiar standard arc lamp, of which there are 19,000 in use within Greater New York—4,500 of them in Manhattan. These lamps used 150 watts at the arc, a watt being 1/746 of one horse-power, the unit of measurement used for the purchase of current. There were also 188 lamps using 325 watts at the arc, principally in Brooklyn. The remaining electric lamps were of the incandescent tungsten type, ranging in wattage from 400 down to 50. An excellent type of 100 watt incandescent tungsten lamp may be seen in Central Park and on Riverside Drive.

In round numbers the cost of lighting the streets and parks of Greater New York was \$3,116,000 in 1911, \$3,298,000 in 1912 and \$3,382,000 in 1913. The new administration became impressed with the rising cost of such lighting and as soon as practicable sought to familiarize itself with the problem and to find ways and means to control at least to some extent the cost for 1914 and to reduce it for 1915.

The department will continue to study the street lighting problem and to make necessary changes until (assuming adequate appropriations) all street lighting is what it should be. Meanwhile it is interesting to note that the cost thereof during 1915 will be approximately \$400,000 less than it was in 1914, while the total candle-power illumination will be far greater this year than last.

The department is required to supply light and power to all public buildings and structures within Greater New York. There are over 2,380 such buildings. Under the term "structures" are included twenty bridges. About one-tenth of the lighting under this heading is done by gas. What follows relates to lighting by electric current.

While street lighting is paid for per lamp per night, irrespective of the amount of current consumed, the lighting of public buildings by electricity is paid for on the basis of current actually consumed as shown by meters. In round numbers the cost of all light and power for public buildings was \$363,220 in 1911, \$1,075,622 in 1912, and \$1,135,011 in 1913. Again, the new administration became impressed with the yearly increases in cost of light and power. It is true that school houses and other public buildings to be lighted were constantly increasing in numbers, and yet it was felt that if the problem were carefully studied material economies could be effected.

It will be impracticable before the end of 1915 to state with any accuracy how much less will be the cost of lighting public buildings and structures during 1915 than during 1914. But that a very material saving, reaching perhaps \$200,000, will be made can, we believe, even at this time be safely asserted.

To do the work and to conduct the various departmental activities, of which the most important have been mentioned above, costs a great deal of money. The department expended during 1914 \$11,600,000, of which about \$3,570,000 was used for the salaries and wages of some 2,800 employees, \$3,500,000 for street lighting, \$1,100,000 for public building lighting and \$2,000,000 for the operation of the pumping stations.

The department began the year 1915 with a material reduction in the force as it existed at the outset of the present administration. The payroll of several of its bureaus was reduced to the extent of more than \$10,000 through a reorganization of the work and of the labor force and a reduction in the number of bureau divisions,

SUPPLYING NEW YORK CITY WITH WATER AND LIGHT

By WILLIAM WILLIAMS, Commissioner Department Water Supply, Gas and Electricity.

THE Department of Water Supply, Gas and Electricity touches the every day relations of the inhabitants of this great city at many points and carries on several kinds of work of vital importance to their welfare. It performs its duties through the medium of four bureaus; namely, the Bureau of Administration, the Bureau of Water Supply, the Bureau of Water Register and the Bureau of Gas and Electricity. The total of officials and employees at the present writing is 2,750.

The following brief description of the water supplies of New York and other principal matters with which the department has to deal indicates what has been done during the past year in relation to the water supplies of Greater New York and the present methods of distributing water in each of the five boroughs.

The average daily consumption of water in the five boroughs during 1914 was 545 million gallons, of which 508 million gallons were furnished by the city and thirty-seven million gallons by certain private water companies operating in Brooklyn, Queens and on Staten Island. By boroughs, the average daily consumption by the city was 347 million gallons in Manhattan and The Bronx, 134 in Brooklyn, 15 in Queens and 12 in Richmond. The city or municipal water so consumed is obtained through several supply systems, the principal of which are the Croton watershed, the Brooklyn watershed, the Bronx and Hylan watersheds and private water companies.

At a very great cost, estimated at over \$147,000,000, the city has recently been engaged in developing and bringing to New York an additional water supply from the Esopus watershed in the Catskill Mountains. It is estimated that it will be available by the end of 1916 and that it will yield approximately 250 million gallons a day. Thereafter three aqueducts will be engaged in bringing the water to Manhattan Island. But the new aqueduct, unlike the two Croton aqueducts, will continue on beneath the East River to Brooklyn. Catskill water will be sent on thence to Queens through a 48 inch main, and to Staten Island by means of a 36 inch cast iron pipe passing under the Narrows.

Vast changes will result in the methods and machinery for supplying water to many portions of New York city, which changes were, during 1914, a subject of serious study by the Water Department. The precise manner in which the new supply will be utilized in connection with the existing distribution system has not yet been determined.

It is the duty of the department not only to furnish an adequate supply of water, but to maintain its quality. Of this important branch of its work the public hears little or nothing, and yet it is prosecuted with great care and vigor. Fifty or more men are continuously patrolling the reservoirs, streams and ponds to locate and abate possible sources of contamination.

Sanitary inspectors make daily inspections of conditions affecting the quality of the water. At two laboratories, one in the Croton watershed and the other in Brooklyn, daily bacteriological examinations are made of samples of water taken at nine different points. Additional samples from sources of supply which do not require daily investigation result in

the laboratory examining 9,000 samples during the year.

In spite, however, of great care water collected on the surface of the ground may become contaminated and dangerous to health. The department therefore sterilizes all water obtained from surface supply by treatment with chlorine which destroys the bacteria. Microscopic growths which inevitably develop in waters stored in reservoirs exposed to the light are likely to cause unpleasant tastes and odors. They are particularly noticeable in hot water, but they are not in any sense harmful to health, and the water containing them can be consumed safely. They are reduced as much as possible by treatment.

New York had last year a typhoid death rate of only 5.9 per one hundred thousand inhabitants, which is the lowest for the ten largest American cities. But even this low rate is steadily decreasing. The water supplied by the city is shown by analysis to be better now than it has been for many years, and it is safer to drink than most bottled waters.

The total length of city owned water mains within Greater New York is about 2,845 miles, exclusive of high pressure fire service mains. There are about 377,000 connections, known as services, through which the water may be drawn from them for domestic or business purposes. They are of cast iron (the early water mains of New York were of wood) and some of them were laid as many as seventy-five years ago.

As the city is growing rapidly the duty devolves upon the department making numerous extensions of water mains. Thus, during 1914, 75 miles of new mains were laid, 17 of them in Manhattan and The Bronx, 23 in Brooklyn, 22 in Queens and 13 in Richmond. Through the growth of the city many miles of old mains have

ceased to be of sufficient capacity and these are being continually replaced by larger ones.

The amount of water used by the Fire Department is not great as compared with that used for domestic purposes and amounts during the year

to less than one day's supply. In the high pressure system salt water can be used, but since it corrodes the pipes and damages merchandise its use (except at Coney Island) is not contemplated unless the fresh water supply fails, which has not yet occurred. At

Coney Island it is used in conjunction with fresh water.

There are about 47,500 fire hydrants in Greater New York, 4,100 of which relate to the high pressure fire service in the boroughs of Manhattan and Brooklyn. For the last ten years



Water Department officials testing high pressure fire service mains.



Commissioner William Williams.